

CLAIMS:

1. A system for applying compression therapy to patient's limb, the system comprising

5 a patient-support apparatus having a module-receiving cavity, a compression sleeve adapted to couple to the patient's limb, the sleeve being inflatable to compress the patient's limb, a conduit through which the sleeve is inflated, and a compression module removably attachable to the patient-support 10 apparatus and operable to inflate the sleeve through the conduit, at least a portion of the compression module being received in the module-receiving cavity when the compression module is attached to the patient-support apparatus.

2. The system of claim 1, wherein the patient-support apparatus comprises a bed.

15 3. The system of claim 2, wherein the bed comprises a siderail and the module-receiving cavity is formed in the siderail.

4. The system of claim 3, wherein the siderail has an interior region and a portion of the conduit is situated in the interior region of the siderail.

5. The system of claim 2, wherein the bed comprises a footboard 20 and the module-receiving cavity is formed in the footboard.

6. The system of claim 5, wherein the footboard has an interior region and a portion of the conduit is situated in the interior region of the footboard.

7. The system of claim 2, wherein the bed comprises a mattress and the module-receiving cavity is formed in the mattress.

25 8. The system of claim 7, wherein the mattress has an interior region and a portion of the conduit is situated in the interior region of the mattress.

9. The system of claim 2, wherein the bed comprises a patient-support deck and the module-receiving cavity is formed in the patient-support deck.

30 10. The system of claim 9, wherein the patient-support deck has an interior region and a portion of the conduit is situated in the interior region of the patient-support deck.

11. The system of claim 9, wherein the patient-support deck has a first deck section and a second deck section, the first deck section is movable with respect to the second deck section, and the module-receiving cavity is formed in the first deck section.

5 12. The system of claim 1, wherein the patient-support apparatus has an inlet port, the compression module has an outlet port, the inlet port is coupled to the conduit, and the outlet port couples automatically to the inlet port when the compression module is inserted into the module-receiving cavity.

10 13. The system of claim 1, wherein the compression module comprises an electric circuit and a pressure generator, the patient-support apparatus comprises an electrical system, and the electrical system of the patient-support apparatus communicates with the electric circuit of the compression module when the compression module is coupled to the patient-support apparatus.

15 14. The system of claim 13, wherein the compression module has a first electrical connector, the patient-support apparatus has a second electrical connector, and the first electrical connector mates automatically with the second electrical connector when the compression module is inserted into the module-receiving cavity.

20 15. The system of claim 13, wherein the electrical system comprises a user input device configured to receive user inputs to command the operation of the compression module and the user input device is spaced from the module-receiving cavity.

16. The system of claim 13, wherein the pressure generator comprises a pump.

25 17. The system of claim 13, wherein the pressure generator comprises a compressor.

18. The system of claim 1, wherein the compression module is adapted to receive pressurized fluid from an external source of pressurized fluid and the compression module comprises a first valve having an opened position allowing 30 pressurized fluid to flow through the conduit to inflate the compression sleeve and a closed position blocking the flow of pressurized fluid into the conduit.

19. The system of claim 1, wherein the patient-support apparatus comprises a mattress.

20. The system of claim 19, wherein the mattress comprises a core and a coverlet having an interior region in which the core is situated, the module-receiving cavity is formed in the core, and the coverlet has an opening through which the module-receiving cavity is accessed.

5 21. The system of claim 20, wherein the conduit is routed at least partially through the interior region of the coverlet and the conduit has a portion situated outside the interior region that is adapted to couple to the compression sleeve.

22. The mattress of claim 21, wherein the portion of the conduit that is adapted to couple to the compression sleeve comprises a connection port.

10 23. The mattress of claim 22, wherein the connection port is coupled to the coverlet.

24. The mattress of claim 23, wherein the coverlet has a top panel, a bottom panel, and a side panel extending between the top and bottom panels, and the connection port is coupled to the side panel.

15 25. The mattress of claim 23, wherein the coverlet and core have a head end, a foot end, and a pair of sides extending between the head and foot ends, the module-receiving cavity is closer to the head end than to the foot end, and the connection port is closer to the foot end than to the head end.

20 26. The mattress of claim 20, further comprising a liner member having a first portion that lines the module-receiving cavity and having a second portion coupled to the coverlet.

27. The mattress of claim 26, wherein the first portion of the liner member has a space configured to receive at least a portion of the compression module therein.

25 28. The mattress of claim 26, wherein the second portion comprises a flange that couples to the coverlet adjacent the opening.

29. A system for applying compression therapy to a patient's limb, the system comprising

a patient-support apparatus,

30 a compression sleeve adapted to couple to the patient's limb, the compression sleeve being inflatable to compress the patient's limb,

a compression module attachable to the patient-support apparatus and operable to inflate the compression sleeve, and

a conduit through which the sleeve is inflated, the conduit extending between the compression module and the compression sleeve, at least a portion of the conduit being routed through a portion of the patient-support apparatus.

30. The system of claim 29, wherein the patient-support apparatus 5 comprises a bed having a siderail and the siderail provides the portion of the patient-support apparatus through which the portion of the conduit is routed.

31. The system of claim 30, wherein the side rail has a cavity in which at least a portion of the compression module is received when the compression module is attached to the patient-support apparatus.

10 32. The system of claim 29, wherein the patient-support apparatus comprises a bed having a footboard and the footboard provides the portion of the patient-support apparatus through which the portion of the conduit is routed.

15 33. The system of claim 32, wherein the footboard has a cavity in which at least a portion of the compression module is received when the compression module is attached to the patient-support apparatus.

34. The system of claim 29, wherein the patient-support apparatus comprises a mattress and the mattress provides the portion of the patient-support apparatus through which the portion of the conduit is routed.

20 35. The system of claim 34, wherein the mattress has a cavity in which at least a portion of the compression module is received when the compression module is attached to the patient-support apparatus.

25 36. The system of claim 29, wherein the patient-support apparatus comprises a bed having a patient-support deck and the patient-support deck provides the portion of the patient-support apparatus through which the portion of the conduit is routed.

37. The system of claim 36, wherein the patient-support deck has a cavity in which at least a portion of the compression module is received when the compression module is attached to the patient-support apparatus.

30 38. The system of claim 29, wherein the patient-support apparatus has an inlet port, the compression module has an outlet port, the inlet port is coupled to the conduit, and the outlet port couples automatically to the inlet port when the compression module is attached to the patient-support apparatus.

39. The system of claim 29, wherein the compression module comprises an electric circuit and a pressure generator, the patient-support apparatus comprises an electrical system, and the electrical system of the bed communicates with the electric circuit of the compression module when the compression module is attached to the patient-support apparatus.

40. The system of claim 39, wherein the compression module has a first electrical connector, the patient-support apparatus has a second electrical connector, and the first electrical connector mates automatically with the second electrical connector when the compression module is attached to the patient-support apparatus.

41. The system of claim 39, wherein the electrical system comprises a user input device configured to receive user inputs to command the operation of the compression module.

42. The system of claim 39, wherein the pressure generator comprises a pump.

43. The system of claim 39, wherein the pressure generator comprises a compressor.

44. The system of claim 29, wherein the compression module is adapted to receive pressurized fluid from an external source of pressurized fluid and the compression module comprises a first valve having an opened position allowing pressurized fluid to flow through the conduit to inflate the compression sleeve and a closed position blocking the flow of pressurized fluid into the conduit.

45. A system for applying compression therapy to a patient's limb, the system comprising
25 a bed,
a compression sleeve adapted to couple to the patient's limb, the compression sleeve being inflatable to compress the patient's limb,
a conduit through which the sleeve is inflated, and
a compression module having a pressure generator that is operable to
30 inflate the compression sleeve through the conduit, the compression module being removably attachable to the bed, the compression module having a battery that supplies power to the pressure generator and that is recharged when the compression module is attached to the bed.

-43-

46. The system of claim 45, wherein the bed has a module-receiving cavity in which at least a portion of the compression module is received when the compression module is attached to the bed.

47. The system of claim 46, wherein the bed comprises a foot 5 board and the cavity is provided in the foot board.

48. The system of claim 46, wherein the bed comprises a siderail and the cavity is provided in the siderail.

49. The system of claim 46, wherein the bed comprises a patient-support deck including a pivotable deck section and the cavity is provided in the 10 pivotable deck section.

50. The system of claim 46, wherein the bed has a first electrical connector accessible in the cavity and a first pneumatic coupler accessible in the cavity, the compression module has a second electrical connector and a second pneumatic coupler, the second electrical connector mates with the first electrical 15 connector when the compression module is attached to the bed, and the second pneumatic coupler mates with the first pneumatic coupler when the compression module is attached to the bed.

51. The system of claim 50, wherein the battery is recharged by current passing through the first and second electrical connectors.

20 52. The system of claim 45, wherein the bed has an electrical system, the compression module has an electric circuit, and data is communicated between the electrical system and the electric system.

53. The system of claim 52, wherein the data comprises operating parameters of the compression module.

25 54. The system of claim 52, wherein the data comprises alarm conditions of the compression module.

55. The system of claim 45, wherein the conduit comprises a first conduit portion routed through an interior region of the bed and a second conduit portion extending between the first conduit portion and the compression sleeve.

30 56. The system of claim 55, wherein the conduit comprises a first conduit coupler mounted to a surface of the bed and a second conduit coupler that detachably couples to the first conduit coupler.

57. The system of claim 56, wherein the compression module has a third conduit coupler to which the second conduit coupler is coupleable when the compression module is detached from the bed and when the second conduit coupler is detached from the first conduit coupler.

5 58. A system for applying compression therapy to a patient's limb, the system comprising

a bed having an electrical control system,

10 a compression sleeve adapted to couple to the patient's limb, the compression sleeve being inflatable to compress the patient's limb, and

15 a compression module having an electric circuit and a pressure generator that is operable to inflate the compression sleeve, the electric circuit of the compression module being operable to communicate compression data to the electrical control system of the bed.

15 59. The system of claim 58, wherein the electric circuit of the compression module communicates wirelessly with the electrical control system of the bed.

60. The system of claim 58, wherein the electric circuit of the compression module communicates with the electrical control system of the bed via a hard-wired connection.

20 61. The system of claim 58, wherein the electrical control system of the bed comprises a display screen on which the compression data is viewable by a user.

62. The system of claim 58, wherein the electrical control system of the bed is operable to communicate the compression data to a remote computer.

25 63. The system of claim 58, wherein the electrical control system of the bed is configured to provide power from an external power source to the electric circuit of the compression module.

30 64. The system of claim 63, wherein the compression module has a battery that supplies power to the electric circuit when the external power source is disconnected from the electrical control system of the bed.

65. The system of claim 63, wherein the compression module has a battery and the electric circuit is configured to recharge the battery when the electric

circuit receives power from the external power source via the electrical control system of the bed.

66. A patient-support apparatus for supporting a patient who receives compression therapy via a compression module that is operable to inflate a compression sleeve assembly coupled to a limb of the patient, the patient-support apparatus comprising

5 a patient-support surface on which the patient may rest, and

10 a surface-support assembly that supports the patient-support surface, the surface-support assembly having a cavity that is adapted to receive therein at least a portion of the compression module.

67. The patient-support apparatus of claim 66, further comprising a connection port that is coupled to the surface-support assembly and that is adapted to couple to the compression sleeve assembly.

68. The patient-support apparatus of claim 67, further comprising a conduit adapted to provide fluid communication between the compression module and the compression sleeve assembly, the surface-support assembly has an interior region, and at least a portion of the conduit is situated in the interior region.

69. The patient-support apparatus of claim 66, wherein the surface-support assembly comprises a frame, the surface-support assembly comprises a 20 footboard coupled to the frame, and the cavity is formed in the footboard.

70. The patient-support apparatus of claim 69, further comprising a connection port that is adapted to couple to the connection sleeve assembly, the footboard has a first side in which the cavity is formed, and the footboard has a second side to which the connection port is coupled.

71. The patient-support apparatus of claim 70, further comprising a conduit extending through the footboard between the cavity and the connection port.

72. The patient-support apparatus of claim 70, wherein the first side of the footboard faces away from the patient-support surface and the second side of the footboard faces toward the patient-support surface.

73. The patient-support apparatus of claim 66, wherein the surface-support assembly comprises a frame, the surface-support assembly comprises a siderail coupled to the frame, and the cavity is formed in the siderail.

74. The patient-support apparatus of claim 73, further comprising a connection port that is adapted to couple to the connection sleeve assembly, the siderail has a first side in which the cavity is formed, and the siderail has a second side to which the connection port is coupled.

5 75. The patient-support apparatus of claim 74, further comprising a conduit extending through the siderail between the cavity and the connection port.

76. The patient-support apparatus of claim 74, wherein the first side of the siderail faces away from the patient-support surface and the second side of the siderail faces toward the patient-support surface.

10 77. The patient-support apparatus of claim 66, wherein the surface-support assembly comprises an articulating deck having a plurality of deck sections, at least some of the deck sections being movable to move the patient-support surface, and the cavity is formed in one of the deck sections.

15 78. The patient-support apparatus of claim 77, wherein the plurality of deck sections includes a head section that moves to move a portion of the patient-support surface that supports the patient's upper body and the cavity is formed in the head section.

20 79. A patient-support apparatus for supporting a patient who receives compression therapy via a compression module that is operable to inflate a compression sleeve assembly coupled to a limb of the patient, the patient-support apparatus comprising

a patient-support surface on which the patient may rest,
a surface-support assembly that supports the patient-support surface,

and

25 a conduit adapted to provide fluid communication between the compression module and the compression sleeve, the surface-support assembly having an interior region, and at least a portion of the conduit is situated in the interior region.

30 80. The patient-support apparatus of claim 79, wherein the conduit comprises a connection port that is coupled to the surface-support assembly and that is adapted to couple to the compression sleeve assembly.

81. The patient-support apparatus of claim 80, wherein the surface-support assembly has a cavity in which at least a portion of the compression module is receivable and the cavity is spaced apart from the connection port.

82. The patient-support apparatus of claim 79, wherein the surface-support assembly comprises a frame, the surface-support assembly comprises a footboard coupled to the frame, the foot board has an interior region, and the conduit is situated at least partially in the interior region of the footboard.

83. The patient-support apparatus of claim 82, wherein the conduit comprises a first connection port adapted to couple to the compression module, the conduit comprises a second connection port adapted to couple to the connection sleeve assembly, the footboard has a first side to which the first connection port is coupled, and the footboard has a second side to which the second connection port is coupled.

84. The patient-support apparatus of claim 83, wherein the first side of the footboard faces away from the patient-support surface and the second side of the footboard faces toward the patient-support surface.

85. The patient-support apparatus of claim 79, wherein the surface-support assembly comprises a frame, the surface-support assembly comprises a siderail coupled to the frame, the siderail has an interior region, and the conduit is situated at least partially in the interior region of the siderail.

86. The patient-support apparatus of claim 85, wherein the conduit comprises a first connection port adapted to couple to the compression module, the conduit comprises a second connection port adapted to couple to the connection sleeve assembly, the siderail has a first side to which the first connection port is coupled, and the siderail has a second side to which the second connection port is coupled.

87. The patient-support apparatus of claim 86, wherein the first side of the siderail faces away from the patient-support surface and the second side of the siderail faces toward the patient-support surface.

88. The patient-support apparatus of claim 79, wherein the surface-support assembly comprises an articulating deck having a plurality of deck sections, at least some of the deck sections being movable to move the patient-support surface,

the articulating deck having an interior region, and the conduit is situated at least partially in the interior region of the articulating deck.

89. A compression therapy system comprising a compression sleeve assembly that is coupleable to a patient's limb, 5 the compression sleeve assembly having a sleeve that is inflatable to compress the patient's limb, and a compression module having an outlet port to which the sleeve is coupled, a pressure generator operable to supply pressure to the outlet port, an inlet port adapted to couple to an external pressure source, and a selector that is movable 10 between a first position and a second position, the outlet port receiving pressure from the pressure generator when the selector is in the first position and the pressure generator is operated, the outlet port receiving pressure from the external pressure source when the selector is in the second position and the inlet port is coupled to the external pressure source.

15 90. The compression therapy system of claim 89, wherein the selector comprises an electrically-actuated valve.

91. The compression therapy system of claim 90, wherein the compression module comprises an electric circuit coupled to the electrically-actuated valve and configured to signal the electrically-operated valve to move between the 20 first and second positions.

92. The compression therapy system of claim 89, wherein the selector comprises a pneumatically-actuated valve that moves automatically from the first position to the second position when the inlet port is coupled to the external pressure source.

25 93. The compression therapy system of claim 92, wherein the compression module comprises an electric circuit coupled to the pneumatically-actuated valve and configured to sense whether the pneumatically-actuated valve is in the first or second position.

94. The compression therapy system of claim 89, wherein the 30 selector comprises a manually-actuated valve.

95. An apparatus for use with a patient who receives compression therapy via a compression module that is operable to inflate a compression sleeve assembly coupled to a limb of the patient, the apparatus comprising

a headwall unit adapted to couple to a wall of a healthcare facility, the headwall unit having a cavity adapted to receive therein at least a portion of the compression module,

5 a first connection port adapted to couple to the compression sleeve assembly, and

a first conduit extending between the cavity and the connection port, at least a portion of the conduit being situated in an interior region of the headwall unit.

96. The apparatus of claim 95, wherein the first connection port is mounted to the headwall unit.

10 97. The apparatus of claim 95, further comprising a second connection port that is coupled to the first conduit and that is situated in fluid communication with the cavity.

15 98. The apparatus of claim 97, further comprising a third connection port situated in fluid communication with the cavity, a second conduit coupled to the third connection port, and the second conduit being adapted to couple to an external pressure source.

20 99. The apparatus of claim 95, further comprising an electrical connector situated at least partially in the cavity, the electrical connector being coupled to a source of electrical power, and electrical power being provided to the compression module through the electrical connector when the compression module is received properly in the cavity.

100. The apparatus of claim 95, further comprising an electrical connector situated at least partially in the cavity, the electrical connector being coupled to a computer network of the healthcare facility, and data being transmittable through the electrical connector when the compression module is received properly in the cavity.

101. A compression therapy system for use in a healthcare facility having a network of computer devices, the compression therapy system comprising 30 a compression sleeve assembly that is coupleable to a patient's limb, the compression sleeve assembly having a sleeve that is inflatable to compress the patient's limb, and

a compression module having an outlet port to which the sleeve is coupled, a pressure generator operable to supply pressure to the outlet port, and an

-50-

electric circuit having a memory device in which compression data is stored, the electric circuit further comprising a data port through which compression data is communicated from the compression module to at least one of the computer devices of the network.

5 102. The compression therapy system of claim 101, wherein the electric circuit is configured to transmit identification data to a locating and tracking portion of the network so that the location of the compression module in the healthcare may be determined by the network.

10 103. The compression therapy system of claim 101, wherein electric circuit is configured to communicate to at least one of the computer devices of the network alarm data regarding an alarm condition of the compression module.

104. The compression therapy system of claim 101, wherein the electric circuit is configured to receive an operating parameter from at least one of the computer devices of the network.